Runjia (Richard) Li

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EDUCATION

University of Oxford, Oxford, United Kingdom   **2020 – Present**
- MEng Engineering Science and BA Engineering Science
- Average Score: 81.2/100; Equivalent US GPA: 3.97/4; Ranking: Top 3%
- Preliminary Distinction Award (top 10 in the final exam)
- Research Intern, Torr Vision Group

PUBLICATIONS

- *OxfordTVG-HIC: Can Machine Make Humorous Captions from Images?* International Conference on Computer Vision (ICCV) 2023 [Oxford TVG Humour Image Captions](#)
    Runjia Li*, Shuyang Sun*, Mohamed Elhoseiny, Philip Torr
- *CLIP as RNN: Segment Countless Visual Concepts without Training Endeavor*, Computer Vision and Pattern Recognition (CVPR submission) 2024 [CLIP as RNN](#)
    Shuyang Sun*, **Runjia Li***, Philip Torr, Xiuye Gu, Siyang Li
- *No Culture Left Behind: Massive Multilingual Affective Captioning Benchmark*, Computer Vision and Pattern Recognition (CVPR submission) 2024
    Youssef Mohamed*, **Runjia Li***, Ibrahim Said Ahmad, Kilichbek Haydarov, Philip Torr, Kenneth Church, Mohamed Elhoseiny
  (* means equal contribution)

RESEARCH & PROJECTS

Segmenting Any Concept without Training   **6/2023 – Present**
Research Assistant, Oxford Torr Vision Group, Advisor: Prof. Philip Torr and Dr. Shuyang Sun
- Co-leading the development of a training-free zero-shot segmentation framework that achieves state-of-the-art (SOTA) performance on multiple video and referring and semantic segmentation benchmarks
- Designed the visual prompting pipeline for CLIP to achieve confidence filtering for semantic segmentation without further training and engineered the adversarial process for text-to-mask query on CLIP
- Conducted experiments and proved the SOTA performance of the framework on datasets PASCAL VOC, PASCAL CONTEXT, and COCO Stuff

Multilingual Affective Vision Language Benchmarking Project   **6/2023 – Present**
Visiting Intern, King Abdullah University of Science and Technology
- Developed the No Culture Left Behind (NCLB) benchmark for evaluating emotion in art across 23 under-represented languages, with 130K annotations for 2000 WikiArt images
- Investigated cross-cultural emotional perception, establishing baselines with existing vision and language models adapted for multilingual use
- Demonstrated the need for improved multilingual model performance and proposed new, human-aligned captioning metrics

Humorous Image Captions Project   **11/2022 – 3/2023**
Research Assistant, Oxford Torr Vision Group, Advisor: Prof. Philip Torr and Dr. Shuyang Sun
- Led the development of OxfordTVG-HIC, a pioneering large-scale dataset for humor generation and understanding, comprising approximately 2.9 million image-text pairs with associated humor scores
- Addressed the challenge of abstract, subjective, and context-dependent cognitive constructs in humor by proposing a new evaluation task for deep-learning methods
- Innovated in humor-related generation tasks, particularly captioning, by providing a diverse dataset that spans emotional and semantic dimensions, fostered out-of-context examples conducive to humor generation
- Demonstrated the applicability of OxfordTVG-HIC for evaluating generated text's humor
- Conducted explainability analyses on trained models, unveiled visual and linguistic cues influential in humor prediction and generation, aligning with the benign violation theory of humor in cognitive psychology

Real-Time Image Deblurring with Wiener Filter Optimization   **09/2022 – 11/2022**

Research Assistant, Duke University, Advisor: Prof. Rabih Younes
- Developed blind-deblurring algorithm utilizing a deep-learning-based Wiener filter, demonstrating proficiency in advanced image processing techniques
- Conducted a comprehensive analysis of the efficiency of the developed method in comparison to other SOTA deblurring methods, substantiated its competitiveness in real-time deblurring applications
- Demonstrated strong leadership skills by organizing collaborative efforts and efficiently managing work distribution among a team of 3 interns, ensuring a cohesive and productive research environment
- Contributed to the advancement of image processing research, showcased innovation in the field

WeChat Palm Pay Project (WPP)   **7/2021 – 10/2021**
Research Intern, Tencent Youtu Lab, Advisor: Mr. Ruixin Zhang
- Worked on the project to develop angle adjustment SDK for a higher user throughput rate
- Increased the personal ID recognition score by 3% ~ 11% with a self-trained angle adjustment pipeline based on WeChat pre-trained Facial-Unet
- Reduced the pass-by time spent on WPP by 26.2% with better-designed recognition starting thresholds based on data simulation

TEACHING EXPERIENCE
Tencent Artificial Intelligence Summer Camp, *Teaching Assistant*   **06/2022 – Present**
- Instructed National Olympiad in Informatics students in the latest theories and techniques within the realm of computer vision, fostered a comprehensive understanding of advanced concepts
- Designed and authored an 87-page textbook complete with relevant codes, delivered lectures on cutting-edge topics such as object detection and pose estimation to facilitate effective learning
- Provided hands-on guidance to students involved in the development of industrial-level palm vein identification projects, contributed to their practical skill set and real-world application of computer vision principles

COMPETITIONS & ACHIEVEMENTS
- Kaggle: Competition Expert, 4 Silver and 3 Bronze Medals, Ranking 711/208129
- Mathworks Mini-drone Competition 2021 EMEA Second Place

SKILLS & LANGUAGES
- Programming: Python, C++
- Machine Learning: PyTorch, Sklearn, Tensorflow, OpenCV, Numpy, Pandas
- Research Interest: Data-efficient Perception, Vision Language Modelling
- 3D & GIS: SolidWorks
- Language: Chinese (native), English (fluent)